STEREO INTEGRATED AMPLIFIER

A-63

SERVICE MANUAL

KENWOOD

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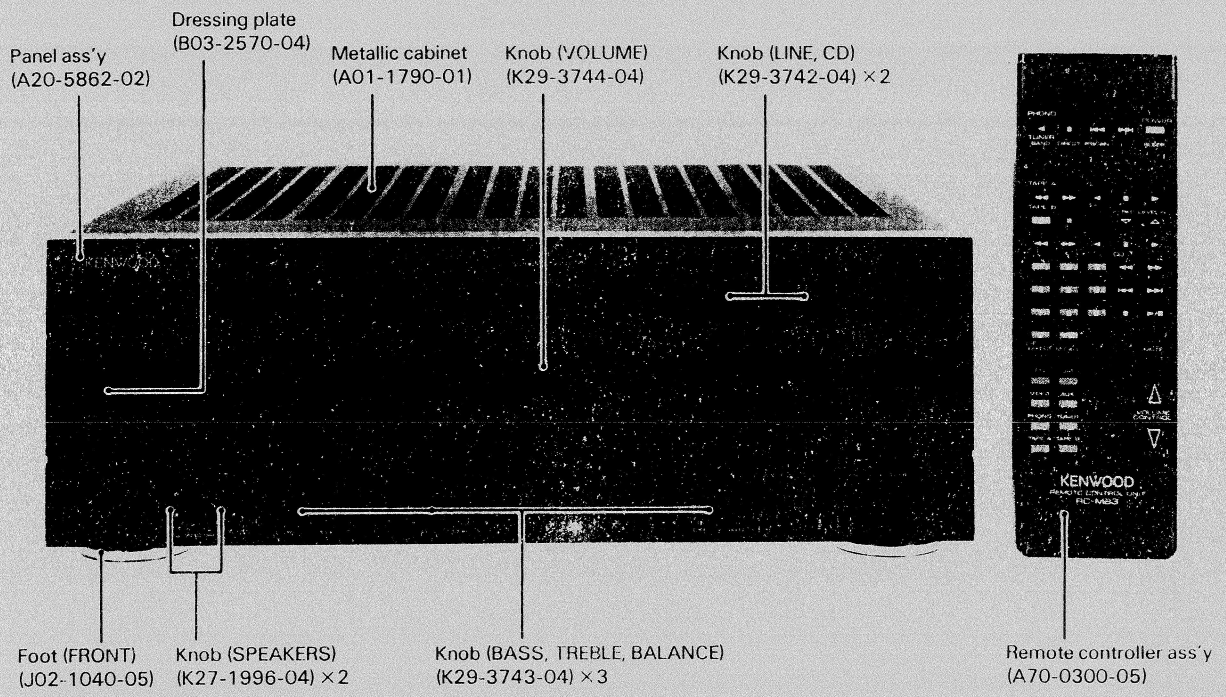
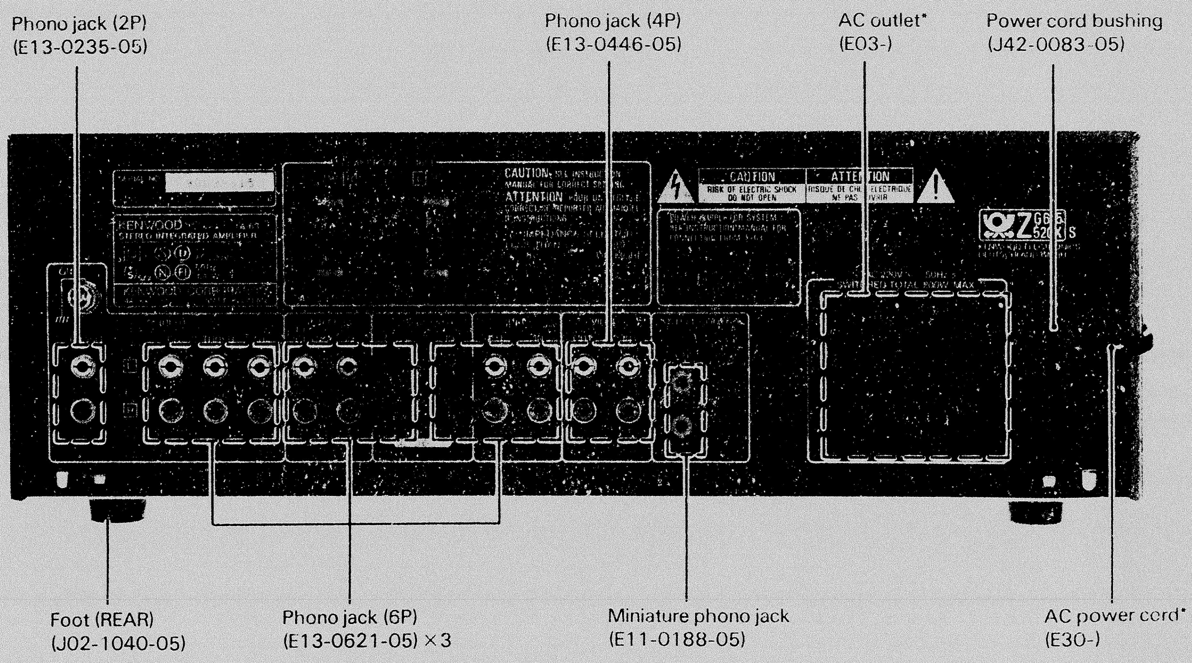
B51-3928-00(B)1575


Panel ass'y
(A20-5862-02)
Dressing plate
(B03-2570-04)
Metallic cabinet
(A01-1790-01)
Knob (VOLUME)
(K29-3744-04)
Knob (LINE, CD)
(K29-3742-04) ×2
KENWOOD
Foot (FRONT)
(J02-1040-05)
Knob (SPEAKERS)
(K27-1996-04) ×2
Knob (BASS, TREBLE, BALANCE)
(K29-3743-04) ×3
KENWOOD
REMOTE CONTROL UNIT
RC-M83
Remote controller ass'y
(A70-0300-05)


Phono jack (2P)
(E13-0235-05)
Phono jack (4P)
(E13-0446-05)
AC outlet*
(E03-)
Power cord bushing
(J42-0083-05)
KENWOOD
STEREO INTEGRATED AMPLIFIER
CAUTION
ATTENTION
Foot (REAR)
(J02-1040-05)
Phono jack (6P)
(E13-0621-05) ×3
Miniature phono jack
(E11-0188-05)
AC power cord*
(E30-)

*** Refer to parts list on page 26.**

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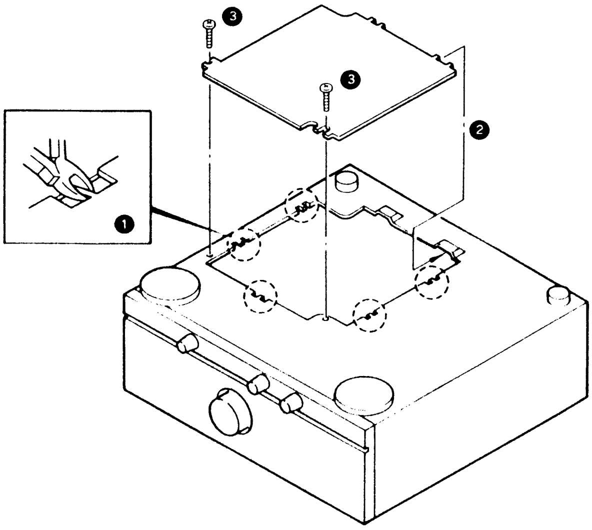
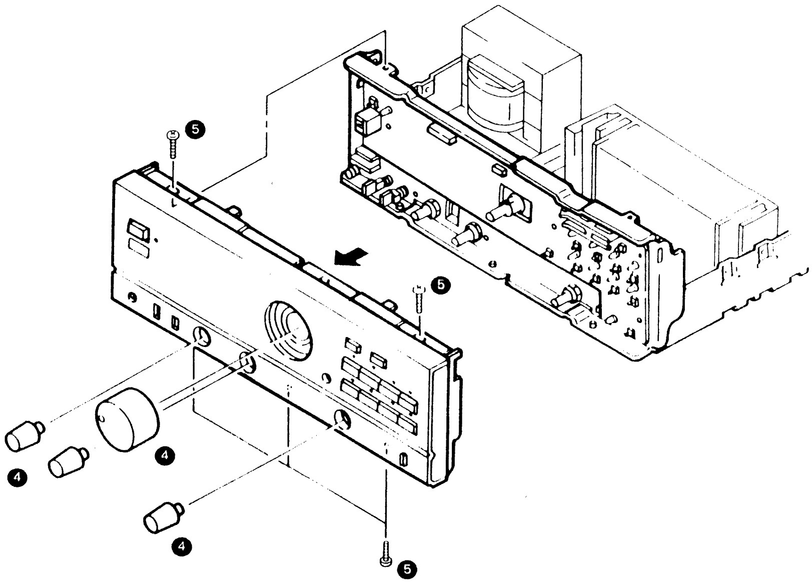
SPECIFICATIONS .... Back cover

DISASSEMBLY FOR REPAIR

Remove the case prior to the following operations.

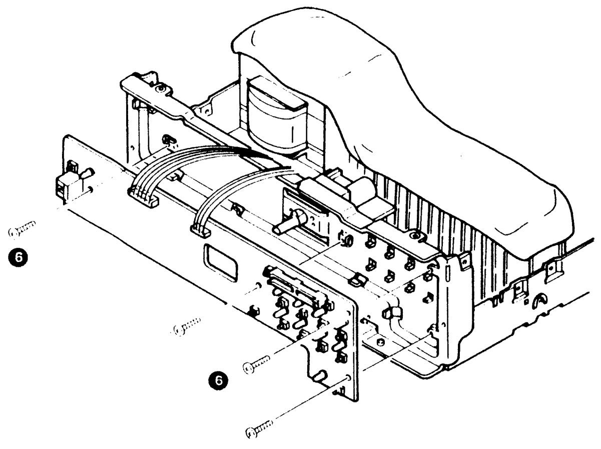
1. Cut the five catches ❶.
2. To put the bottom board back into place after repairing, turn the bottom board 180° and hook the claws into place as shown hereunder ❷.
3. Fix down the bottom board with the two screws ❸.
4. Draw out the four knobs ❹ from their respective shafts.
5. Remove the five screws ❺ of the front panel, then take out the front panel in the direction of the arrow.



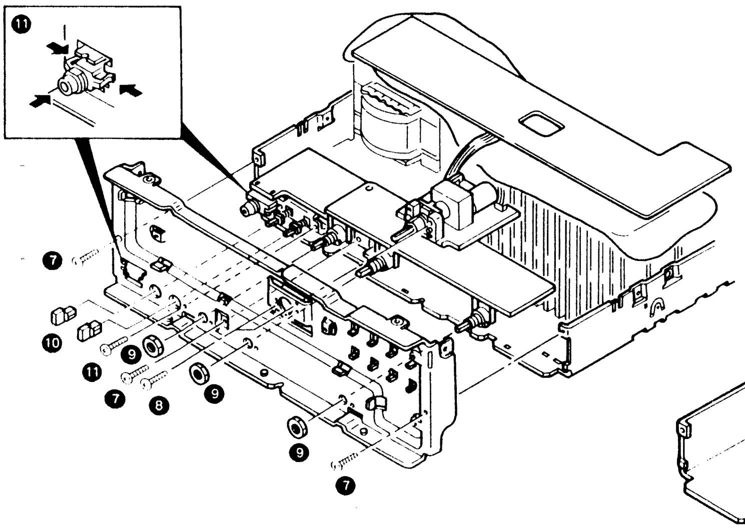


DISASSEMBLY FOR REPAIR

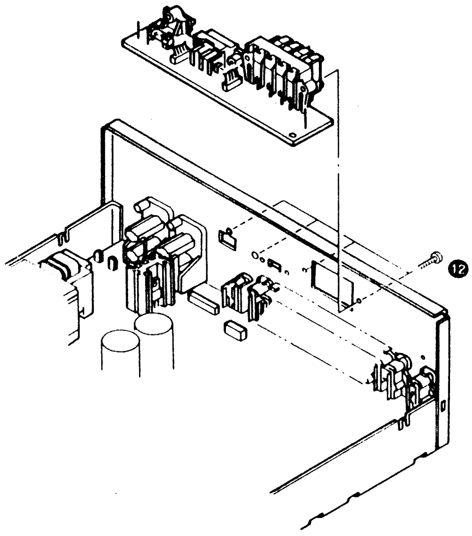
6. Remove the four screws ❻ fixing the PC board.



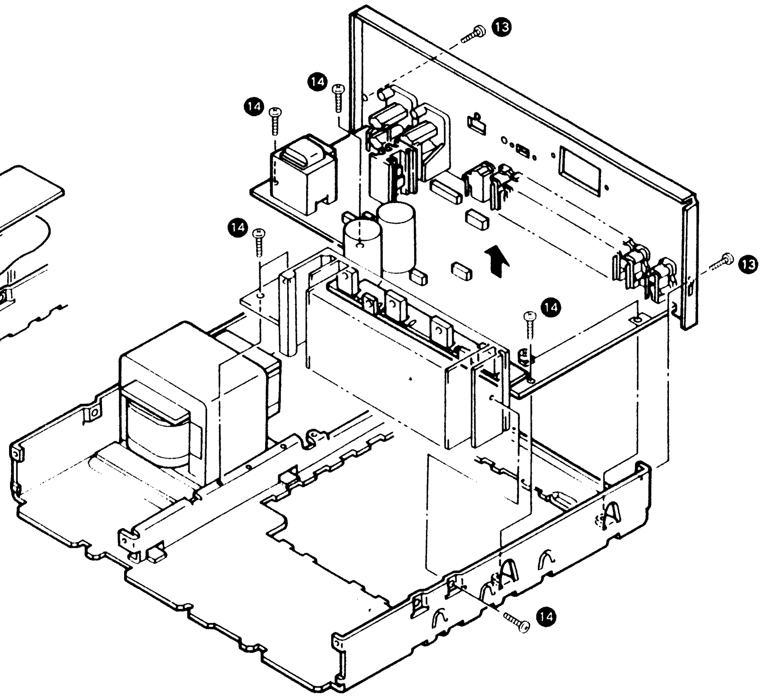
7. Remove the three screws ❼ fixing the subpanel.
8. Remove the two screws ❽ fixing the PC board.
9. Remove the three nuts ❾ fixing the PC board.
10. Draw out the two knobs ❿ from their respective shafts.
11. As shown hereunder, remove the screw and undo the catches, then detach the PC board ⓫ .



12. Remove the four screws ⓬ from the rear panel, then detach the PC board.



13. Remove the two screws ⓭ from the rear panel.
14. Remove the seven screws ⓮ fixing the PC board.



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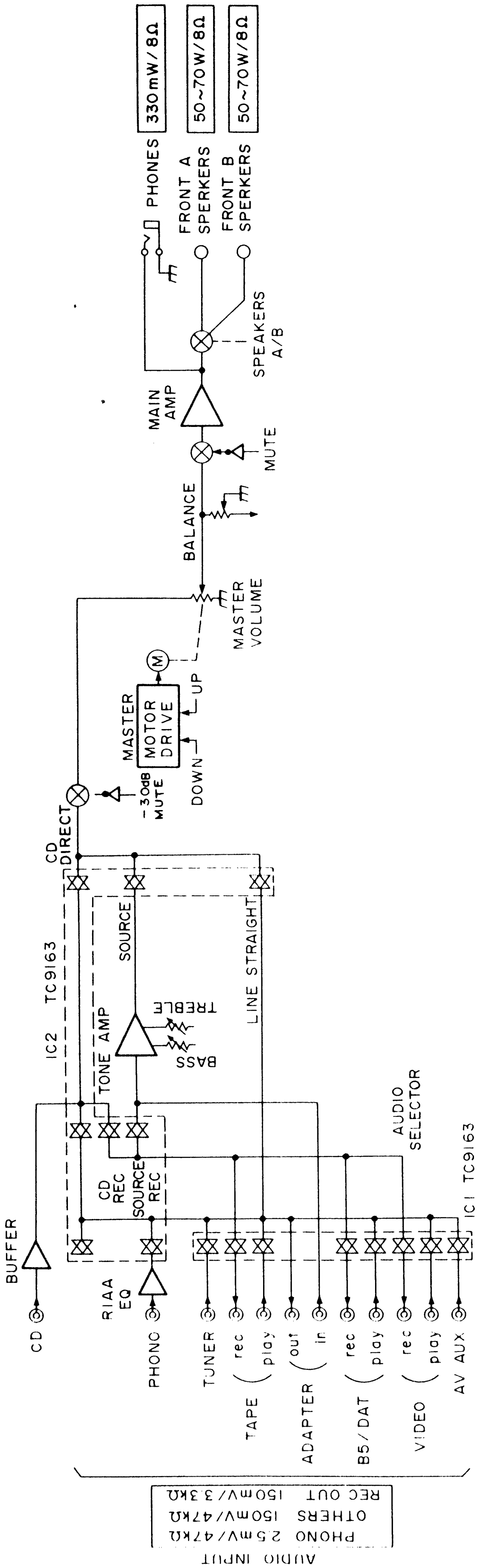
BLOCK LEVEL DIAGRAM


330mW/8Ω
50~70W/8Ω
50~70W/8Ω
PHONES
FRONT A SPERKERS
FRONT B SPERKERS
SPEAKERS A/B
MAIN AMP
MUTE
BALANCE
MASTER VOLUME
M
MASTER
MOTOR DRIVE
UP
DOWN
-30dB MUTE
CD DIRECT
SOURCE
LINE STRAIGHT
IC2 TC9163
TONE AMP
TREBLE
BASS
AUDIO SELECTOR
IC1 TC9163
CD REC
SOURCE REC
BUFFER
RIAA EQ
CD
PHONO
TUNER
TAPE (rec play)
ADAPTER (out in)
B5/DAT (rec play)
VIDEO (rec play)
AV AUX
AUDIO INPUT
PHONO 2.5mV/47kΩ
OTHERS 150mV/47kΩ
REC OUT 150mV/3.3kΩ

CIRCUIT DESCRIPTION

Component Function

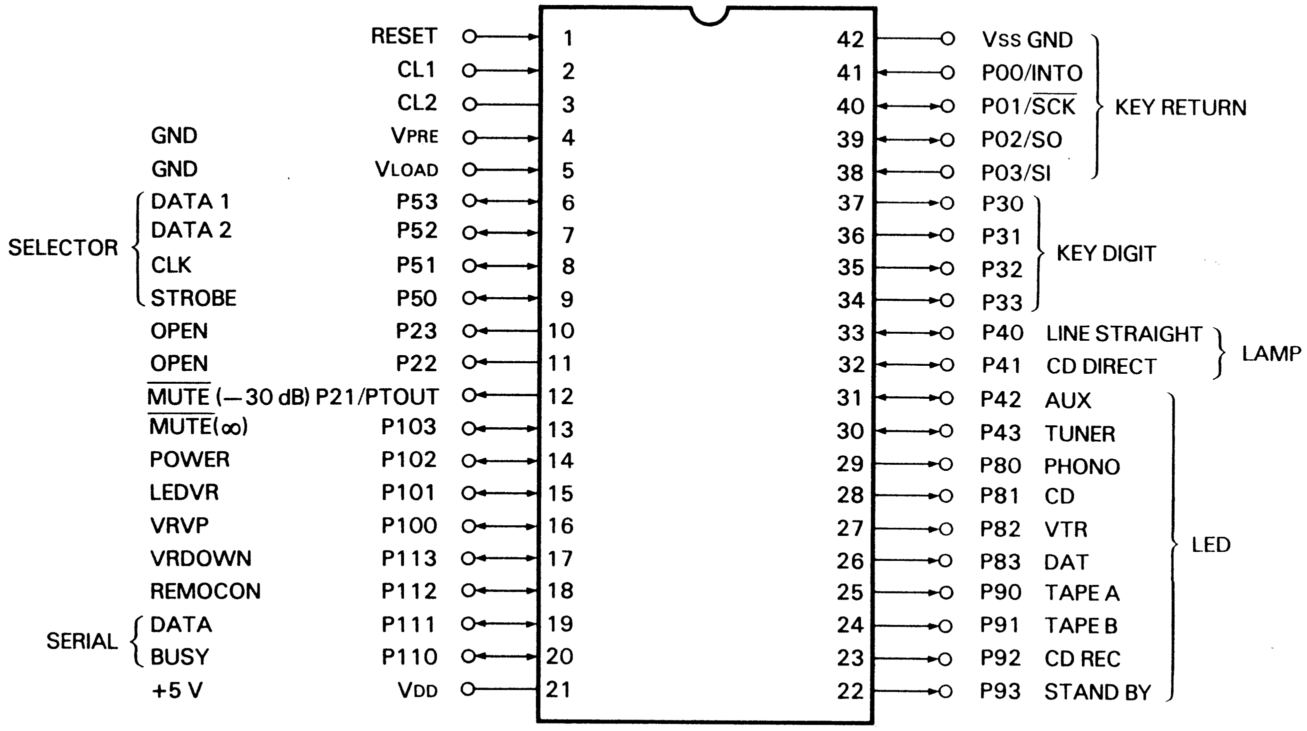
AUDIO UNIT (X09-2920-20)

Component	Component name	Use/Function	Operation/Condition/Compatibility
IC1	μPC4570C-A	Phono equalizer	
IC2, 7	μPC4570C-A	Buffer amp	
IC3, 4	TC9163N	Input selector	
IC5	μPC7805HF	Constant-voltage power supply	+5 V (for the microcomputer)
IC6	μPC7812HF	Constant-voltage power supply	±12 V
IC201	μPC4570C-A	Op-amp	For tone amp.
IC202	μPD7538AC075	Microcomputer	
IC203	PST524D	Reset IC	High reset
IC204	BA6209N	Reversible motor driver	For driving the motor-drive volume control. When the volume is increased with the remote control, pins 2 and 5 go high. When the volume is decreased with the remote control, pins 10 and 6 go high.
Q1～Q4	2SC2878(B)	Muting	
Q5～Q8	2SA992(F,E)	Class-A primary stage differential amplifier	
Q9～Q12	2SC1845(F,E)	Class-A secondary stage differential amplifier	
Q13, Q14	2SA992(F,E)	Class-A current mirror circuit	
Q15, Q16	2SC4137F19(V,W)	For bias current compensation	
Q17, Q18	2SC1845(F,E)		
Q19, Q20	2SC2590	Pre-driver	
Q21, Q22	2SA1110		
Q23	2SC4467LB		
Q24	2SC4467LB		
Q25	2SA1694LB	Final transistor L	
Q26	2SA1694LB	Final transistor R	
Q27		PROTECTION	
Q28	2SC945(A)(Q, P)	PROTECTION	
Q29	2SA733(A)(Q, P)	PROTECTION	
Q31	2SA992(F, E)		
Q32	2SB941		
Q33	2SC2003(L, K)	Power relay drive	Turns ON when the power is switched ON. (Q36 is only for the M-type model)
Q201, Q202	2SA733(A)(Q, P)	Muting driver	Turns Q13 and Q14 ON/OFF.
Q203, Q204	2SC2003(L, K)	Constant-voltage power supply	lamp driver

CIRCUIT DESCRIPTION

Microprocessor (μPD7538AC-075: IC202)

Port layout


RESET
CL1
CL2
GND
VPRE
GND
VLOAD
SELECTOR
DATA 1
P53
DATA 2
P52
CLK
P51
STROBE
P50
OPEN
P23
OPEN
P22
MUTE (−30 dB) P21/PTOUT
MUTE(∞)
P103
POWER
P102
LEDVR
P101
VRVP
P100
VRDOWN
P113
REMOCON
P112
SERIAL
DATA
P111
BUSY
P110
+5 V
VDD
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
Vss GND
P00/INT0
P01/SCK
P02/SO
P03/SI
KEY RETURN
P30
P31
P32
P33
KEY DIGIT
P40
LINE STRAIGHT
P41
CD DIRECT
LAMP
P42
AUX
P43
TUNER
P80
PHONO
P81
CD
P82
VTR
P83
DAT
P90
TAPE A
P91
TAPE B
P92
CD REC
P93
STAND BY
LED

Pin Description

Pin No.	Pin Name	I/O	Function Name	Operation
1	RESET	I	RESET	System reset
2	CL1	I	CLOCK 1	System clock
3	CL2	—	CLOCK 2	System clock
4	VPRE	I	GND	GND
5	VLOAD	I	GND	GND
6	P53	O	SELECTOR DATA 1	Selector drive data signal 1
7	P52	O	SELECTOR DATA 2	Selector drive data signal 2
8	P51	O	SELECTOR CLOCK	Selector drive clock signal
9	P50	O	SELECTOR STROBE	Selector drive strobe signal
10	P23		NC	
11	P22	—	NC	
12	P21/PTOVT	O	MUTE (−30 dB)	Mute (−30 dB)
13	P103	O	MUTE (∞)	Mute (∞)
14	P102	O	POWER	Power relay drive
15	P101	O	LEDVR	Volume LED ON
16	P100	O	VRVP	Volume motor up
17	P113	O	VR DOWN	Volume motor down
18	P112	I	REMOCON	Remove control signal input
19	P111	I/O	SERIAL DATA	Serial signal I/O (DATA)
20	P110	I/I	SERIAL BUSY	Serial signal I/O (BUSY)
21	VDD	I	+5 V	+5 V power supply
22	P93	O	STAND-BY	LED STAND-BY
23	P92	O	CD REC	LED CD REC
24	P91	O	TAPE B	LED TAPE B

CIRCUIT DESCRIPTION

Pin No.	Pin Name	I/O	Function Name	Operation
25	P90	O	TAPE A	LED TAPE A
26	P83	O	DAT	LED DAT
27	P82	O	VTR	LED VTR
28	P81	O	CD	LED CD
29	P80	O	PHONO	LED PHONO
30	P43	O	TUNER	LED TUNER
31	P42	O	AUX	LDD AUX
32	P41	O	CD DIRECT	LAMP CD DIRECT
33	P40	O	LINE STRAIGHT	LAMP LINE STRAIGHT
34	P33	O	KEY DIGIT 3	Key scan signal bit 3
35	P32	O	KEY DIGIT 2	Key scan signal bit 2
36	P31	O	KEY DIGIT 1	Key scan signal bit 1
37	P30	O	KEY DIGIT 0	Key scan signal bit 0
38	P03/SI	I	KEY RETURN 3	Key return signal bit 3
39	P02/SO	I	KEY RETURN 2	Key return signal bit 2
40	P01/SCK	I	KEY RETURN 1	Key return signal bit 1
41	P00/INTO	I	KEY RETURN 0	Key return signal bit 0
42	Vss	I	GND	GND

Operational specification of test mode

With this unit plugged into AC, when a specific key has been pressed or when serial code "TEST ON" is input, this unit performs the operation of the test mode.

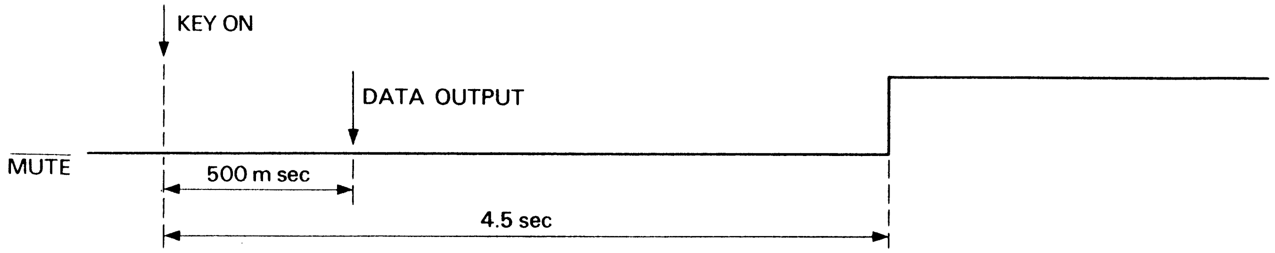
When entering the test mode with this unit plugged into AC.

When the CD key has been pressed

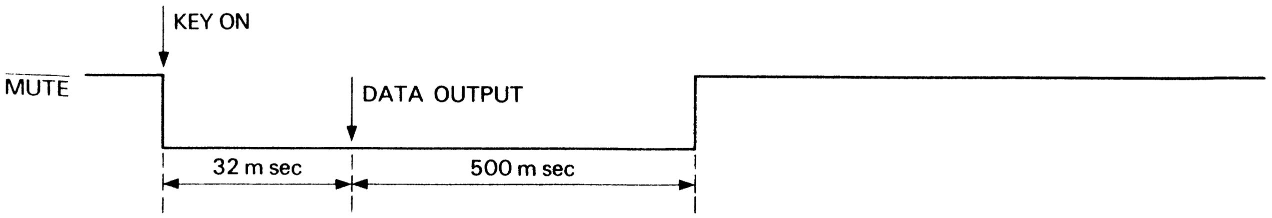
- LEDs light in a sequence as shown below. (LED test)
  * STAND-BY → LINE STRAIGHT → CD DIRECT → AUX → TUNER → PHONO → CD → VTR → DAT → TAPE A → TAPE B → CD REC → *
- Due to pressing the TUNER key, the test mode is disengaged to enter the power ON initial state. (Any other keys are disabled from operation.)

Timing chart

(1) POWER KEY ON



(2) SELECTOR, CD DIRECT, LINE STRAIGHT, CD REC



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ADJUSTMENT/REGLAGE/ABGLEICH

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	–	Connect a DC voltmeter across CP1 (L) CP2 (R) (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X89-)	20 mV	(a)

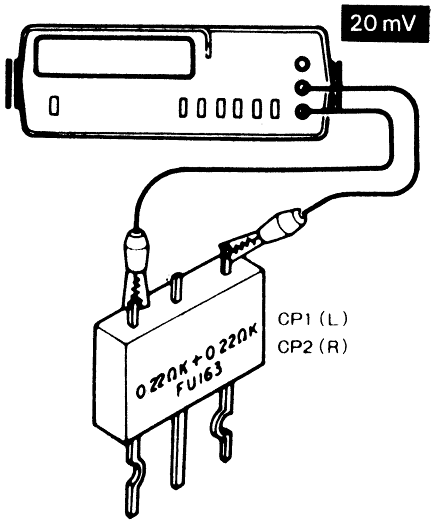
REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINT L'ALIGNEMENT	ALIGNER POUR	
1	COURANT DE POLARISATION	–	Connecter un voltmètre de CC sur CP1 (G) CP2 (D) (X09-)	VOLUME: 0	VR1 (G) VR2 (D) (X89-)	20 mV	(a)

ABGLEICH

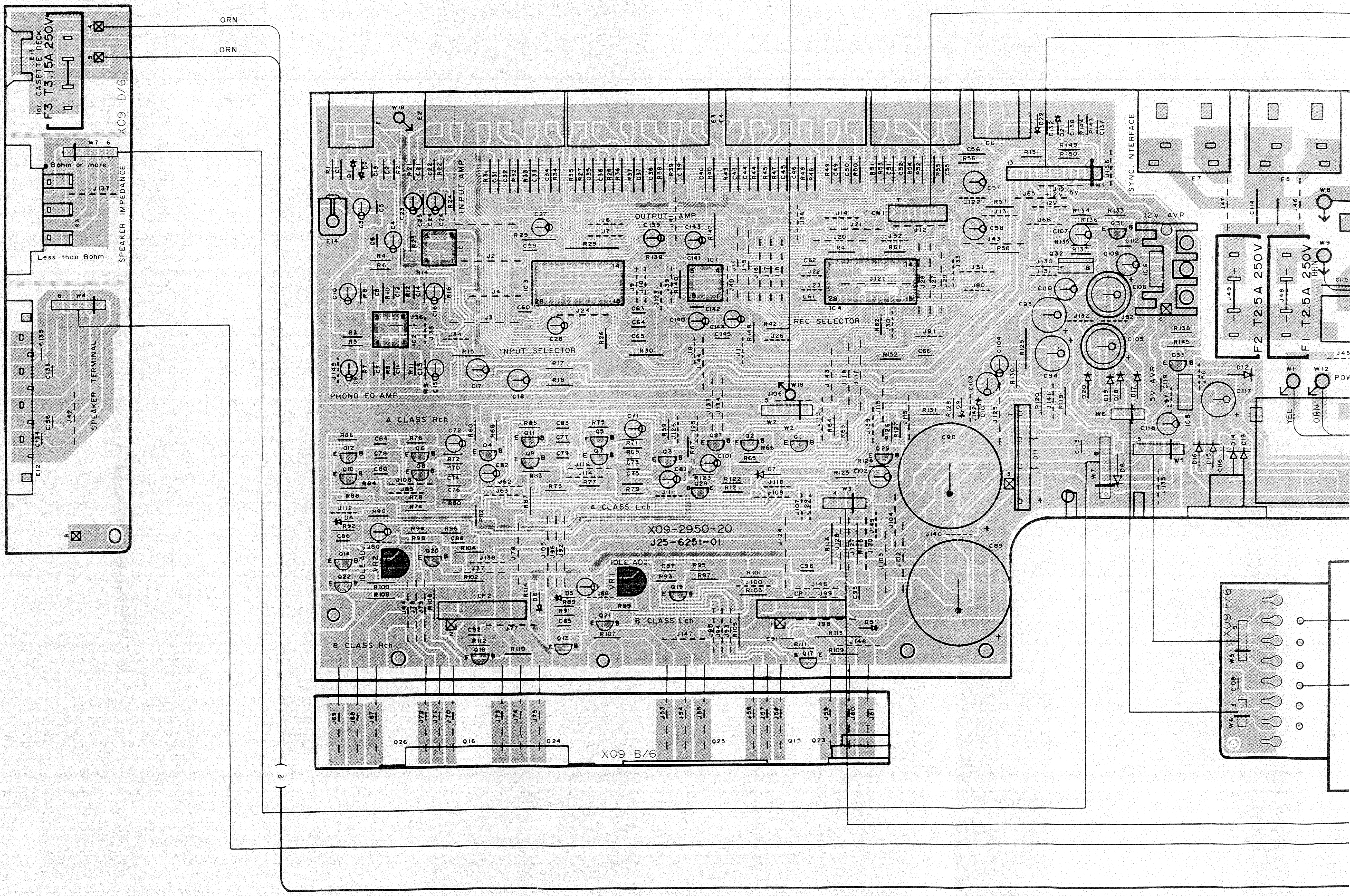
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	–	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen. (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X89-)	20 mV	(a)

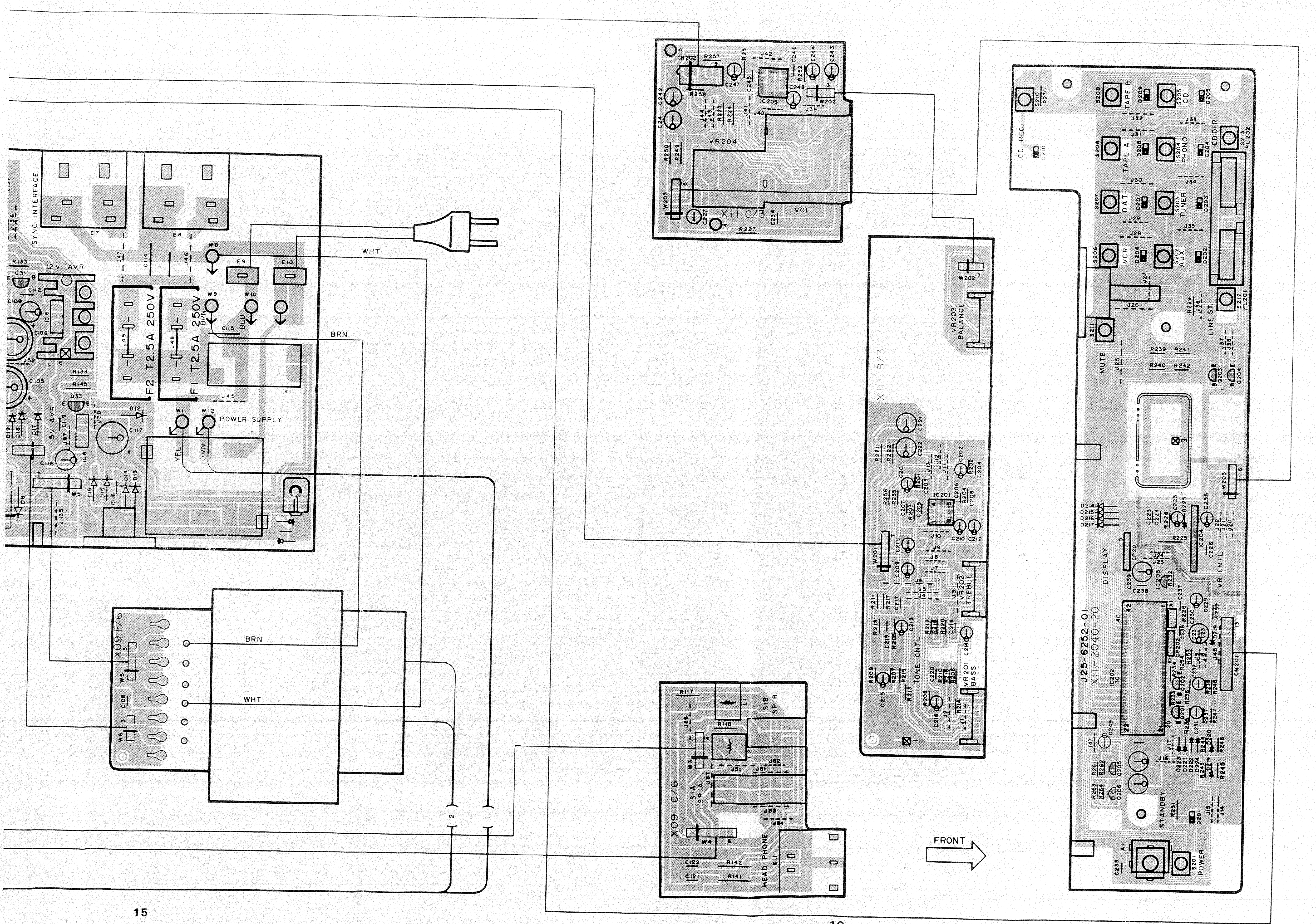
DC voltmeter
Voltmètre de CC
Gleichspannungsmesser



(a)

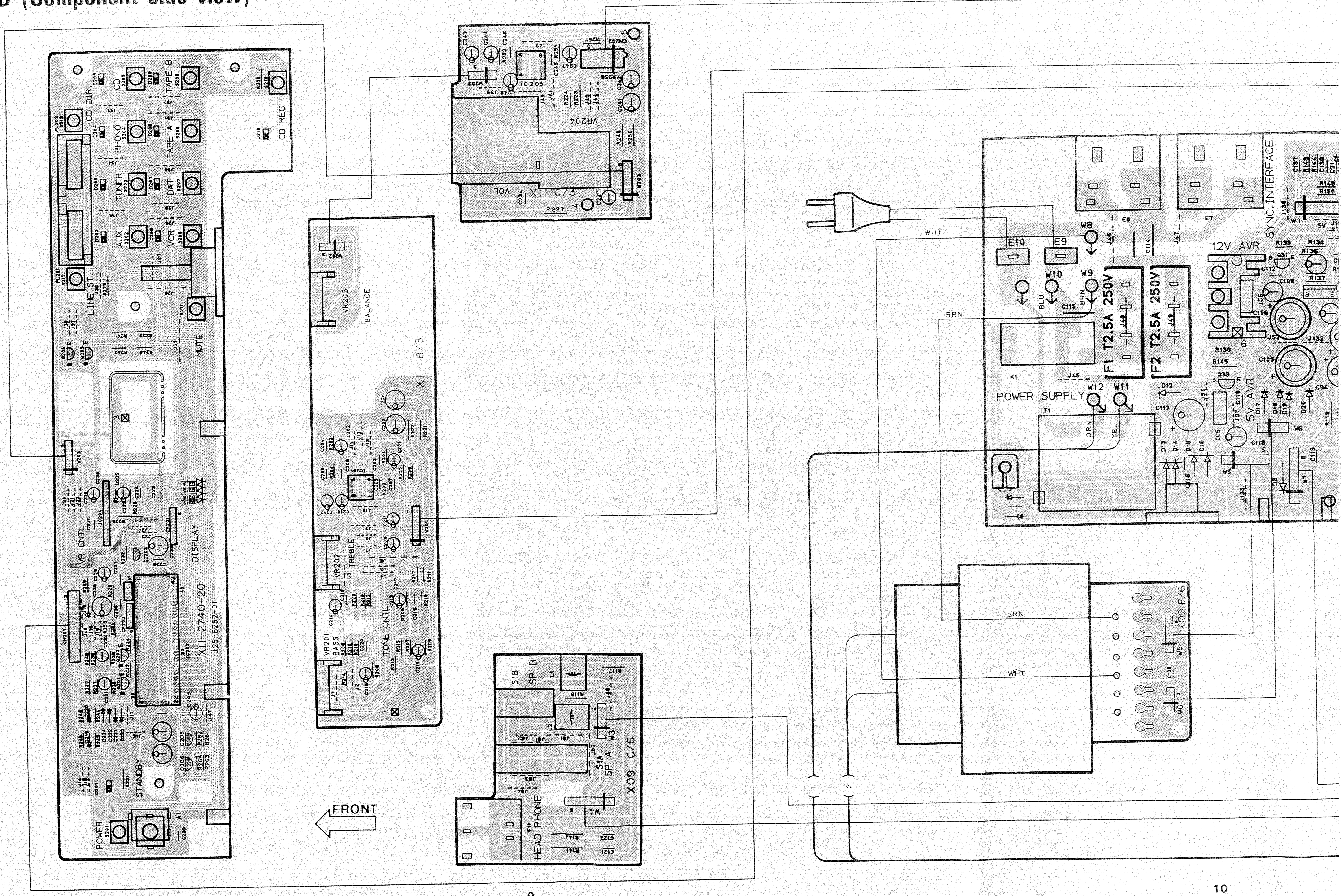
.C. BOARD (Foil side view)

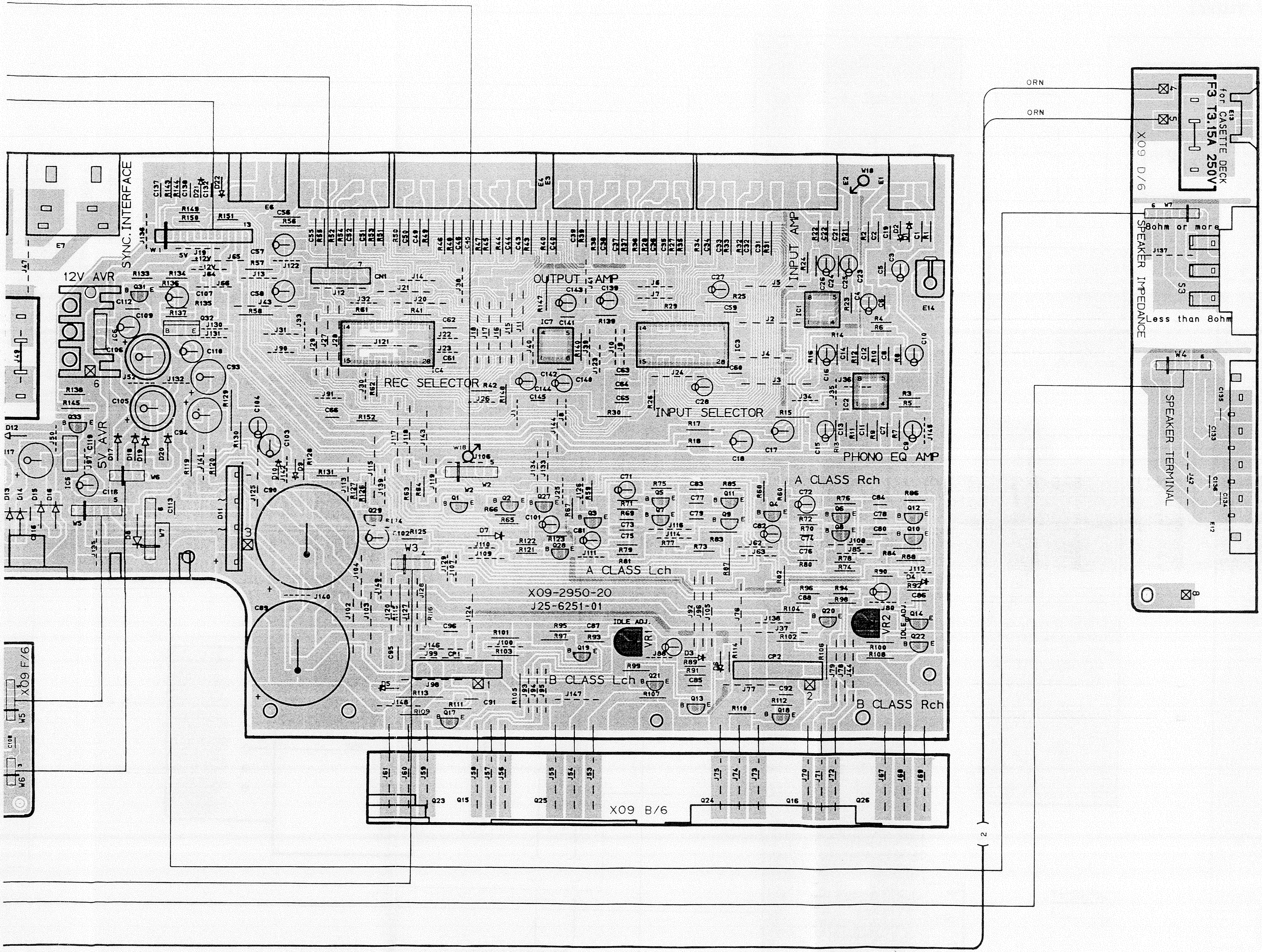

ORN
ORN
for CASETTE DECK
F3 T3.15A 250V
X09 D/6
8ohm or more
Less than 8ohm
SPEAKER IMPEDANCE
SPEAKER TERMINAL
INPUT AMP
OUTPUT AMP
INPUT SELECTOR
REC SELECTOR
PHONO EQ AMP
SYNC. INTERFACE
12V AVR
5V AVR
F2 T2.5A 250V
F1 T2.5A 250V
A CLASS Rch
A CLASS Lch
B CLASS Rch
B CLASS Lch
IDLE ADJ.
VR2
VR1
X09-2950-20
J25-6251-01
X09 B/6
X09 F/6
YEL
ORN
BRN
POW


SYNC. INTERFACE
12 V AVR
5V AVR
F2 T2.5A 250V
F1 T2.5A 250V
POWER SUPPLY
WHT
BRN
YEL
BLU
X09 F/6
X09 C/6
S1A SP A
S1B SP B
HEAD PHONE
X11 C/3
VOL
VR204
X11 B/3
VR203 BALANCE
VR202 TREBLE
VR201 BASS
TONE CNTL
CD REC
TAPE B
TAPE A
CD
PHONO
CD DIR.
DAT
TUNER
VCR
AUX
LINE ST.
MUTE
DISPLAY
VR CNTL
STANDBY
POWER
J25-6252-01
X11-2040-20
FRONT

Refer to the schematic diagram for the values of resistors and capacitors.

P.C. BOARD (Component side view)


CD DIR.
CD
TAPE B
CD REC
PHONO
TAPE A
TUNER
DAT
AUX
VCR
LINE ST.
MUTE
DISPLAY
VR CNTL
X11-2740-20
J25-6252-01
STANDBY
POWER
FRONT
VR203
BALANCE
X11 B/3
VR202
TREBLE
VR201
BASS
TONE CNTL
IC205
VR204
VOL
X11 C/3
S1B
SP B
S1A
SP A
X09 C/6
HEAD PHONE
WHT
BRN
BLU
ORN
YEL
E10
E9
W8
W9
W10
W11
W12
F1 T2.5A 250V
F2 T2.5A 250V
K1
T1
POWER SUPPLY
12V AVR
5V AVR
SYNC. INTERFACE
X09 F/6


SYNC. INTERFACE
12V AVR
5V AVR
REC SELECTOR
OUTPUT AMP
INPUT AMP
INPUT SELECTOR
PHONO EQ AMP
A CLASS Lch
A CLASS Rch
B CLASS Lch
B CLASS Rch
X09-2950-20
J25-6251-01
IDLE ADJ
VR1
VR2
X09 B/6
X09 F/6
X09 D/6
ORN
ORN
F3 T3.15A 250V
for CASETTE DECK
SPEAKER IMPEDANCE
8ohm or more
Less than 8ohm
S3
SPEAKER TERMINAL

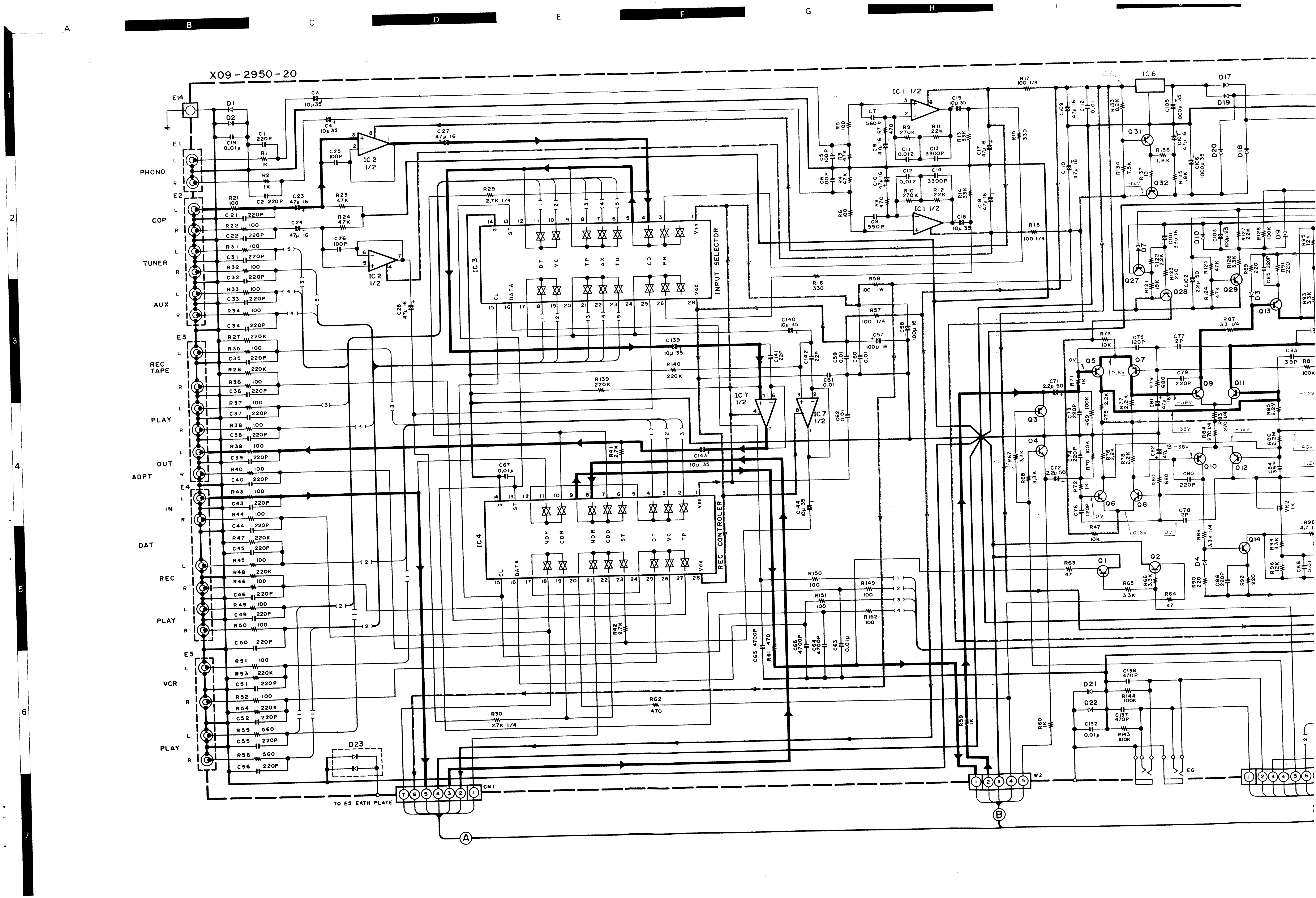
X09-2920-20

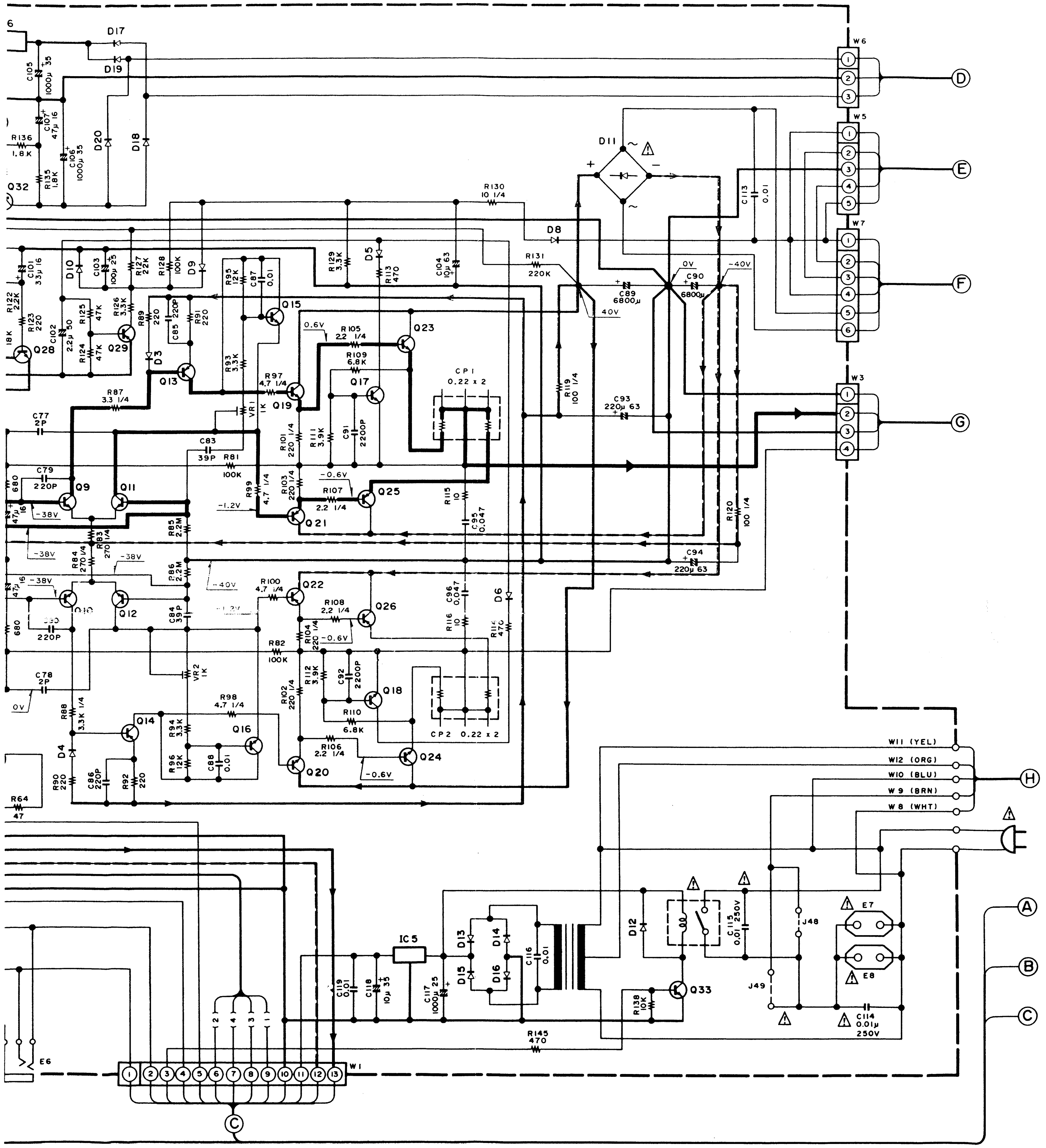
Ref. No.		Address
IC	Q	
	1	4M
	2	4M
	3	4N
	4	4O
	5	4N
	6	4O
	7	4N
	8	4O
	9	4O
	10	4P
	11	4O
	12	4P
	13	5N
	14	5P
	17	6M
	18	5O
	19	5N
	20	5O
	21	5N
	22	5P
	27	4M
	28	4M
	29	4L
	31	3K
	32	3K
	33	4J
1		3O
2		3O
3		3O
4		3L
5		4J
6		3K
7		3M

X11-2740-20

Ref. No.		Address
IC	Q	
	201	6B
	202	5B
	203	3B
	204	3B
201		4D
202		5C
203		
204		4B
205		1E

Refer to the schematic diagram for the values of resistors and capacitors.

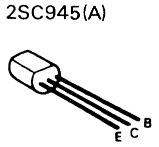

A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
X09-2950-20
E14
D1
D2
E1
PHONO
L
R
E2
COP
TUNER
AUX
E3
REC TAPE
PLAY
OUT
ADPT
E4
IN
DAT
REC
PLAY
E5
VCR
PLAY
IC2 1/2
IC3
INPUT SELECTOR
IC4
REC CONTROLER
IC7 1/2
IC1 1/2
IC6
D17
D19
D18
D20
D21
D22
D23
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q27
Q28
Q29
Q31
Q32
DT
VC
TP
AX
TU
CD
PH
NOR
CDR
CDD
ST
G
CL
DATA
Vss
Vdd
R17 100 1/4
R18 100 1/4
R29 2.7K 1/4
R30 2.7K 1/4
R62 470
R139 220K
R140 220K
C139 10μ 35
C143 10μ 35
C67 0.01μ
C27 47μ 16
C3 10μ 35
C4 10μ 35
TO E5 EATH PLATE
CN1
W2
E6
Ⓐ
Ⓑ


W6
W5
W7
W3
W1
D
E
F
G
H
A
B
C
D11
IC5
Q9
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24
Q25
Q26
Q28
Q29
Q32
Q33
CP1 0.22 x 2
CP2 0.22 x 2
C89 6800μ
C90 6800μ
0V
-40V
-38V
-0.6V
-1.2V
W11 (YEL)
W12 (ORG)
W10 (BLU)
W 9 (BRN)
W 8 (WHT)
E7
E8
J48
J49
C114 0.01μ 250V
C115 0.01 250V
R145 470
E6

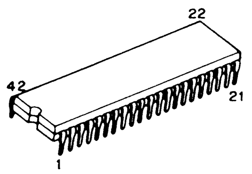
IC 1, 2, 7	:	μPC4570C-A
IC 3, 4	:	TC9163N
IC 5	:	μPC7805HF
IC 6	:	μPC7812HF
Q1 ~ 4	:	2SC2878 (B)
Q5 ~ 8, 13, 14, 31	:	2SA992 (F.E)
Q9 ~ 12, 17, 18	:	2SC1845 (F.E)
Q15, 16	:	2SC4137 (V.W)
Q19, 20	:	2SC2590
Q21, 22	:	2SA1110
Q23, 24	:	2SC4467
Q25, 26	:	2SA1694
Q29	:	2SA733 (A) (O.P)
Q32, 33	:	2SC2003 (L.K)
D 1, 2, 21, 22	:	1SS133 or HSS104
D 3 ~ 10	:	1SS131 or HSS104R
D11	:	RBV-602LFA
D12 ~ 20	:	S55668
D23	:	MA156

X09-295		
	0-52	2-72
R79, 80	680	←
S2	NO	←
C89, 90	1786	←
C114	YES	←
R111, 112	3.9K	←
X09 E/6	NO	←
W10 ~ 17	NO	←
T1 L01-	7657	7662
PT L01-	8882	8887
E7, 8	0109	0108
J48, 49	NO	←
F 1	T2.5A	←
F 2	T2.5A	←
F 4	NO	←
F 5	NO	←

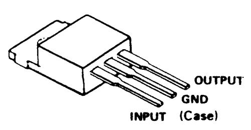
2SA733(A)
2SA992
2SC1845
2SC2003
2SC2878
2SC945(A)



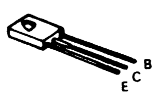
UPD7538AC-075



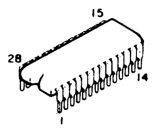
UPC7805HF
UPC7812HF


OUTPUT
GND
INPUT (Case)

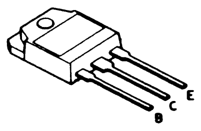
2SA1110
2SC2590



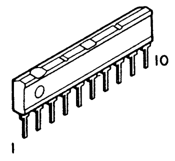
TC9163N



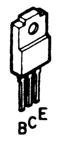
2SA1694LB
2SC4467LB



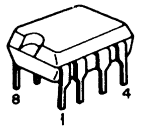
BA6209N



2SB941



UPC4570C-A



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

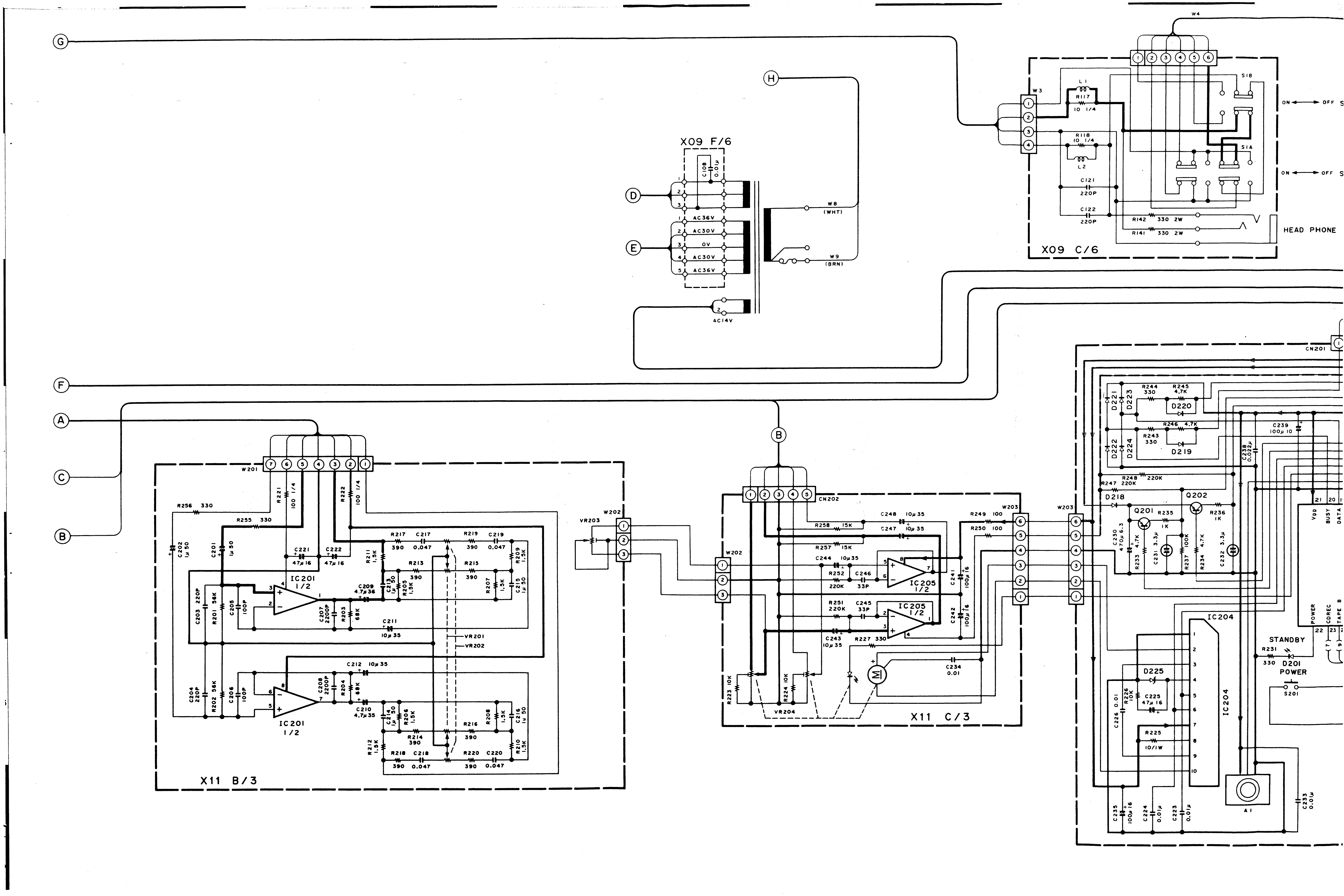
- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

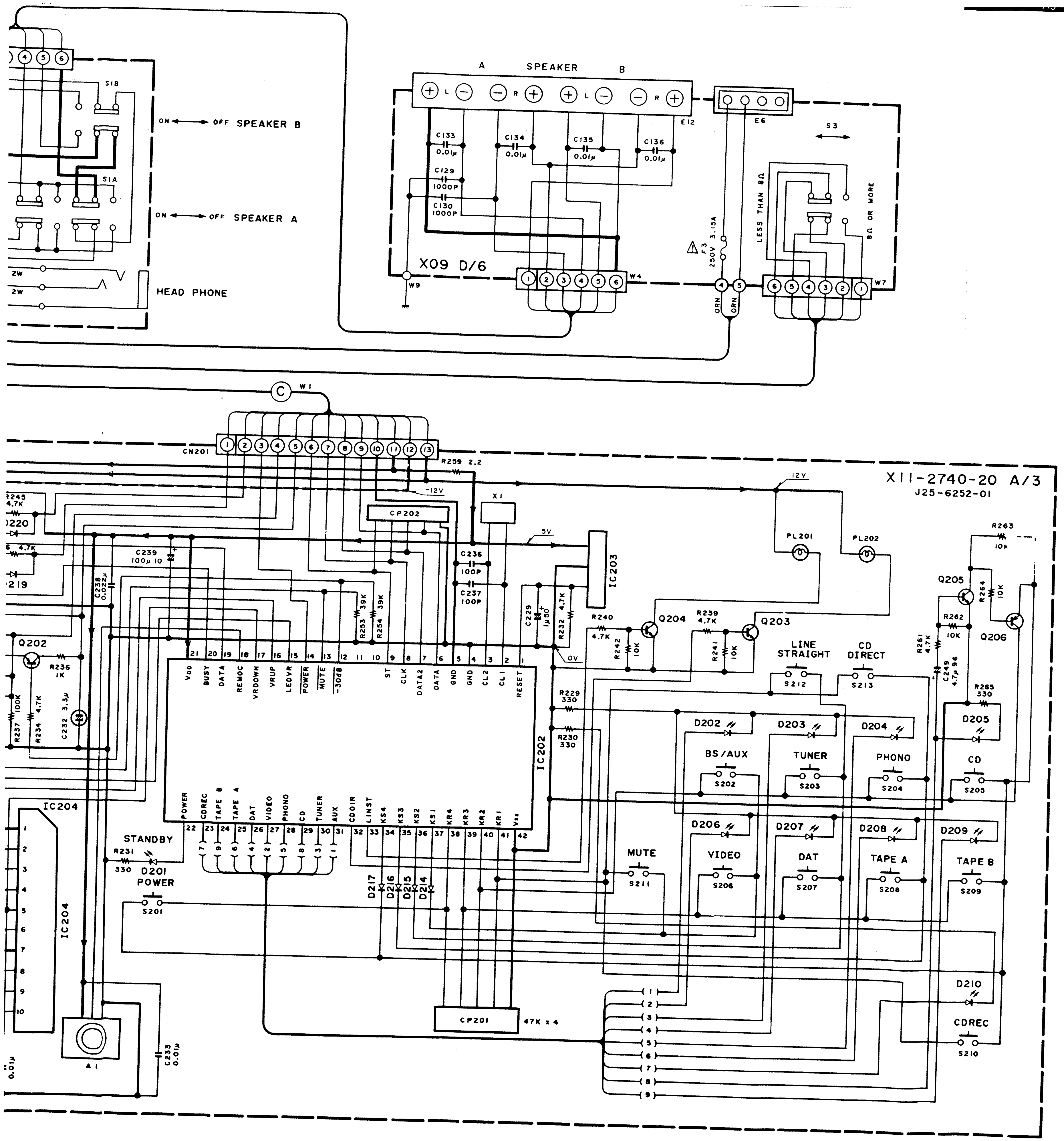
━━━━ SIGNAL LINE
──── GND LINE
──── +B LINE
– – – – -B LINE

A-63

KENWOOD

Y08-3790-52


G
H
X09 F/6
C108 0.01μ
D
E
AC36V
AC30V
0V
AC30V
AC36V
AC14V
W8 (WHT)
W9 (BRN)
W4
W3
L1
R117 10 1/4
R118 10 1/4
L2
C121 220P
C122 220P
R142 330 2W
R141 330 2W
S1B
S1A
ON OFF
HEAD PHONE
X09 C/6
F
A
B
C
W201
R221 100 1/4
R222 100 1/4
R256 330
R255 330
C202 1μ 50
C201 1μ 50
C221 47μ 16
C222 47μ 16
R217 390
C217 0.047
R219 390
C219 0.047
R211 1.5K
R213 390
R215 390
R209 1.5K
C209 4.7μ 36
C213 1μ 50
R205 1.5K
R207 1.5K
C215 1μ 50
IC201 1/2
C203 220P
R201 56K
C205 100P
C207 2200P
R203 68K
C211 10μ 35
VR201
VR202
C212 10μ 35
C204 220P
R202 56K
C206 100P
C208 2200P
R204 68K
C210 4.7μ 35
C214 1μ 50
R206 1.5K
R214 390
R216 390
R208 1.5K
C216 1μ 50
R212 1.5K
R218 390
C218 0.047
R220 390
C220 0.047
R210 1.5K
X11 B/3
VR203
W202
CN202
R258 15K
R257 15K
C248 10μ 35
C247 10μ 35
C244 10μ 35
R252 220K
C246 33P
IC205 1/2
R251 220K
C245 33P
C243 10μ 35
R227 330
C241 100μ 16
C242 100μ 16
C234 0.01
R249 100
R250 100
W203
R223 10K
R224 10K
VR204
M
X11 C/3
CN201
R244 330
R245 4.7K
D221
D223
D220
R246 4.7K
R243 330
D222
D224
D219
C239 100μ 10
C238 0.022μ
R248 220K
R247 220K
D218
Q201
Q202
R235 1K
R236 1K
C230 470μ 6.3
R233 4.7K
C231 3.3μ
R237 100K
R234 4.7K
C232 3.3μ
21 20
VDD
BUSY
DATA
POWER
CDREC
TAPE B
22 23
STANDBY
R231 330
D201 POWER
S201
IC204
D225
R226 10K
C225 47μ 16
C226 0.01
R225 10/1W
C235 100μ 16
C224 0.01μ
C223 0.01μ
A1
C233 0.01μ

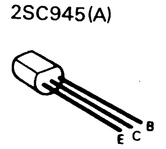

SPEAKER
A
B
L
R
E12
E6
S3
C133 0.01μ
C134 0.01μ
C135 0.01μ
C136 0.01μ
C129 1000P
C130 1000P
X09 D/6
W4
W9
W7
F3 250V 3.15A
LESS THAN 8Ω
8Ω OR MORE
ORN
S1B
S1A
ON ←→ OFF SPEAKER B
ON ←→ OFF SPEAKER A
HEAD PHONE
2W
W1
C
CN201
R259 2.2
-12V
12V
5V
0V
X11-2740-20 A/3
J25-6252-01
CP202
X1
IC203
C236 100P
C237 100P
C239 100μ 10
C238 0.022μ
C229 1μ50
R232 4.7K
R253 39K
R254 39K
R245 4.7K
D220
D219
4.7K
Q202
R236 1K
R237 100K
R234 4.7K
C232 3.3μ
R240 4.7K
R242 10K
Q204
R239 4.7K
R241 10K
Q203
PL201
PL202
R263 10K
Q205
R264 10K
R262 10K
R261 4.7K
Q206
C249 4.7μ 96
R265 330
LINE STRAIGHT
S212
CD DIRECT
S213
IC202
VDD BUSY DATA REMOC VRDOWN VRUP LEDVR POWER MUTE -30dB ST CLK DATA2 DATA GND GND CL2 CL1 RESET
POWER CDREC TAPE B TAPE A DAT VIDEO PHONO CD TUNER AUX CDOIR LINST KS4 KS3 KS2 KS1 KR4 KR3 KR2 KR1 Vss
R229 330
R230 330
D202 D203 D204 D205
BS/AUX S202
TUNER S203
PHONO S204
CD S205
D206 D207 D208 D209
MUTE S211
VIDEO S206
DAT S207
TAPE A S208
TAPE B S209
D210
CDREC S210
STANDBY
R231 330
D201
POWER S201
D217 D216 D215 D214
CP201 47K x 4
IC204
A1
C233 0.01μ
0.01μ

IC201, 205 : μPC4570C-A
IC202 : μPD7538AC-075
IC203 : PST524D
IC204 : BA6209N

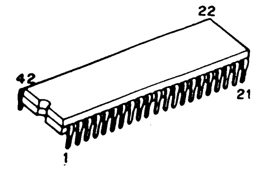
Q201, 202 : 2SA733(A) (Q.P)
Q203, 204 : 2SC2003(L.K)

D201 ~ 211 : 830-1223-05
D204 224 : ISS133 or HSS104A

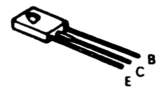
2SA733(A)
2SA992
2SC1845
2SC2003
2SC2878
2SC945(A)



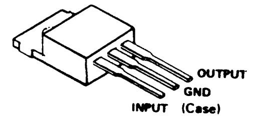
UPD7538AC-075



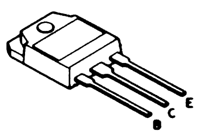
2SA1110
2SC2590



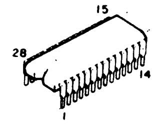
UPC7805HF
UPC7812HF


OUTPUT
GND
INPUT (Case)

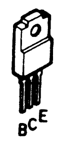
2SA1694LB
2SC4467LB



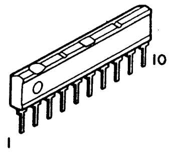
TC9163N



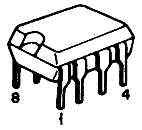
2SB941



BA6209N



UPC4570C-A



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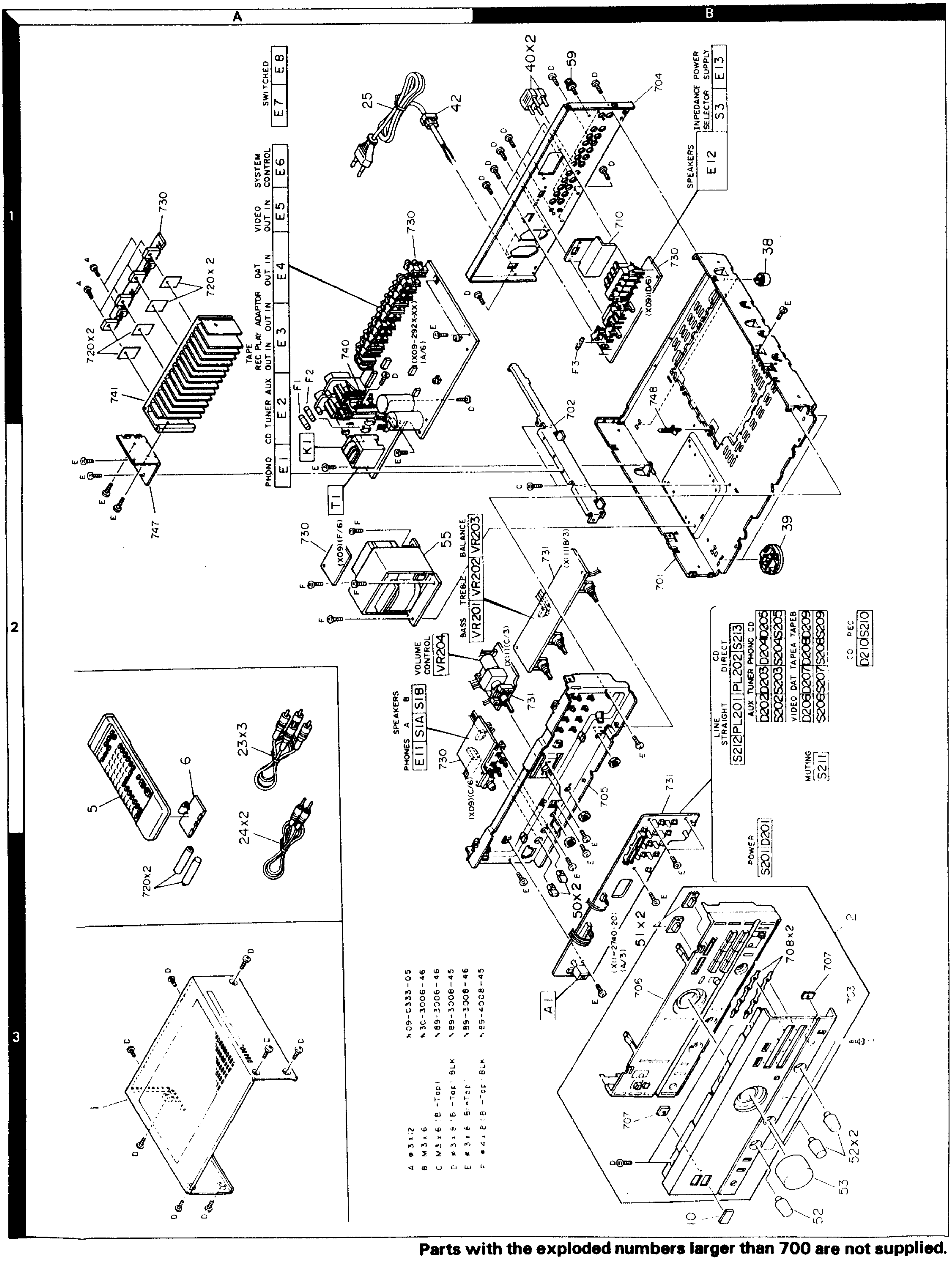
━ SIGNAL LINE
─ GND LINE
─ +B LINE
- - -B LINE

EXPLODED VIEW


A
B
1
2
3
PHONO E1
CD
TUNER
AUX E2
TAPE REC OUT PLAY IN
ADAPTOR OUT IN E3
DAT OUT IN E4
VIDEO OUT IN E5
SYSTEM CONTROL E6
SWITCHED E7 E8
SPEAKERS E12
INPEDANCE SELECTOR S3
POWER SUPPLY E13
K1
T1
F1
F2
F3
(X09-292X-XX)(A/6)
(X09)(D/6)
(X09)(F/6)
(X09)(C/6)
(X11)(B/3)
(X11)(C/3)
(X11-2740-20)(A/3)
A1
BASS VR201
TREBLE VR202
BALANCE VR203
VOLUME CONTROL VR204
PHONES E11
SPEAKERS A S1A
SPEAKERS B S1B
LINE STRAIGHT S212 PL201
CD DIRECT PL202 S213
AUX D202 S202
TUNER D203 S203
PHONO D204 S204
CD D205 S205
VIDEO D206 S206
DAT D207 S207
TAPEA D208 S208
TAPEB D209 S209
CD REC D210 S210
MUTING S211
POWER S201 D201
2
5
6
10
23x3
24x2
25
38
39
40x2
42
50x2
51x2
52
52x2
53
55
59
701
702
704
705
706
707
708x2
710
720x2
720 x 2
730
731
740
741
747
748
A
B
C
D
E
F
A ø3x12 N09-0333-05
B M3x6 N30-3006-46
C M3x6 (B)-Tap N89-3006-46
D ø3x8 (B)-Tap BLK N89-3008-45
E ø3x6 (B)-Tap N89-3008-46
F ø4x8 (B)-Tap BLK N89-4008-45

Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

⁎ New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
A-63						
1	1A	⁎	A01-1790-01	METALLIC CABINET		
2	2A	⁎	A20-5862-02	PANEL ASSY		
5	1B	⁎	A70-0300-05	REMOTE CONTROLLER ASSY		
6	1B		A09-0088-08	BOTTERY CASE		
10	2A	⁎	B03-2570-04	DRESSING PLATE		
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		⁎	B50-9832-00	INSTRUCTION MANUAL		
-		⁎	B50-9833-00	INSTRUCTION MANUAL	E	
-		⁎	B50-9834-00	INSTRUCTION MANUAL	E	
-		⁎	B52-0342-00	CONNECTING DIAGRAM		
-			B58-0803-13	CAUTION CARD	E	
23	1B		E30-0615-05	AUDIO CORD		
24	1B		E30-1392-05	CORD WITH PLUG		
⚠ 25	1C		E30-0459-05	AC POWER CORD	E	
⚠ 25	1C		E30-1416-05	AC POWER CORD	T	
⚠ F1 ,2	1C		F05-2525-05	FUSE (SEMKO) (250V T2.5A)		
⚠ F3	2C		F05-3121-05	FUSE (SEMKO) (250V T3.15A)		
37	2B		G13-0439-04	CUSHION		
-		⁎	H01-8620-04	ITEM CARTON CASE		
-		⁎	H10-3884-02	POLYSTYRENE FOAMED FIXTURE		
-		⁎	H10-3885-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
38	2C		J02-0366-15	FOOT		
39	2B		J02-1040-05	FOOT		
40	2C		J12-0091-05	PIN		
⚠ 42	1C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
50	2A	⁎	K27-1996-04	KNOB (BUTTON)(SPEAKERS)		
51	2A	⁎	K29-3742-04	KNOB (LINE,CD)		
52	2A	⁎	K29-3743-04	KNOB (BASS,TREBLE,BALANCE)		
53	2A	⁎	K29-3744-04	KNOB (VOLUME)		
⚠ 55	2B	⁎	L01-8882-05	POWER TRANSFORMER	T	
⚠ 55	2B	⁎	L01-8887-05	POWER TRANSFORMER	E	
59	2C		N08-0128-35	BINDING POST		
A	1C		N09-0333-05	TAPPING SCREW (3X12)		
B	1A		N30-3006-46	PAN HEAD MACHINE SCREW		
C	2B		N89-3006-46	BINDING HEAD TAPTITE SCREW		
D	1A,2A		N89-3008-45	BINDING HEAD TAPTITE SCREW		
E	2A		N89-3008-46	BINDING HEAD TAPTITE SCREW		
F	1B		N89-4008-45	BINDING HEAD TAPTITE SCREW		
Q15 ,16		⁎	2SC4137F19(V,W)	TRANSISTOR		
Q23 ,24		⁎	2SC4467LB	TRANSISTOR		
Q25 ,26		⁎	2SA1694LB	TRANSISTOR		
AUDIO UNIT (X09-2950-20)						
C1 ,2			C91-0749-05	CERAMIC 220PF K		
C3 ,4			CE04KW1V100M	ELECTRO 10UF 35WV		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE : AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PARTS LIST

※ New Parts
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Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C5 ,6			CC45FSL1H101J	CERAMIC	100PF	J		
C7 ,8			CK45FB1H561K	CERAMIC	560PF	K		
C9 ,10			CE04KW1C470M	ELECTRO	47UF	16WV		
C11 ,12			CF92FV1H123J	MF	0.012UF	J		
C13 ,14			CF92FV1H332J	MF	3300PF	J		
C15 ,16			CE04KW1V100M	ELECTRO	10UF	35WV		
C17 ,18			CE04KW1C470M	ELECTRO	47UF	16WV		
C19			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C21 ,22			C91-0749-05	CERAMIC	220PF	K		
C23 ,24			CE04KW1C470M	ELECTRO	47UF	16WV		
C25 ,26			C91-0745-05	CERAMIC	100PF	K		
C27 ,28			CE04KW1C470M	ELECTRO	47UF	16WV		
C31 -40			C91-0749-05	CERAMIC	220PF	K		
C43 -46			C91-0749-05	CERAMIC	220PF	K		
C49 -52			C91-0749-05	CERAMIC	220PF	K		
C55 ,56			C91-0749-05	CERAMIC	220PF	K		
C57 ,58			CE04KW1C101M	ELECTRO	100UF	16WV		
C59 -67			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C71 ,72			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C73 ,74			CC45FSL1H221J	CERAMIC	220PF	J		
C75 ,76			CC45FSL1H121J	CERAMIC	120PF	J		
C77 ,78			CC45FSL1H020C	CERAMIC	2.0PF	C		
C79 ,80			CC45FSL1H221J	CERAMIC	220PF	J		
C81 ,82			CE04KW1C470M	ELECTRO	47UF	16WV		
C83 ,84			CC45FSL1H390J	CERAMIC	39PF	J		
C85 ,86			CC45FSL1H221J	CERAMIC	220PF	J		
C87 ,88			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C89 ,90			C90-1786-05	ELECTRO	6800UF	50WV		
C91 ,92			CK45FB1H222K	CERAMIC	2200PF	K		
C93 ,94			CE04KW1J221M	ELECTRO	220UF	63WV		
C95 ,96			CF92FV1H473J	MF	0.047UF	J		
C101			CE04KW1C330M	ELECTRO	33UF	16WV		
C102			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C103			CE04KW1E101M	ELECTRO	100UF	25WV		
C104			CE04KW1J100M	ELECTRO	10UF	63WV		
C105,106			CE04KW1V102M	ELECTRO	1000UF	35WV		
C107			CE04KW1C470M	ELECTRO	47UF	16WV		
C108			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C109,110			CE04KW1C470M	ELECTRO	47UF	16WV		
C112			CF92FV1H103J	MF	0.010UF	J		
C113			CK45FF1H103Z	CERAMIC	0.010UF	Z		
⚠ C114,115			C91-0971-05	FILM	0.01UF	250WV		
C116			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C117			CE04KW1E102M	ELECTRO	1000UF	25WV		
C118			CE04KW1V100M	ELECTRO	10UF	35WV		
C119			CF92FV1H103J	MF	0.010UF	J		
C121,122			CC45FSL1H221J	CERAMIC	220PF	J		
C129,130			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C132			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C133-136			CF92FV1H103J	MF	0.010UF	J		
C137,138			CK45FB1H471K	CERAMIC	470PF	K		
C139,140			CE04KW1V100M	ELECTRO	10UF	35WV		
C141,142			CC45FSL1H220J	CERAMIC	22PF	J		
C143,144			CE04KW1V100M	ELECTRO	10UF	35WV		

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PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
E1			E13-0235-05	PHONO JACK (2P)		
E2 -4			E13-0621-05	PHONO JACK (6P)		
E5			E13-0446-05	PHONO JACK (4P)		
E6			E11-0188-05	MINIATURE PHONE JACK		
⚠ E7 ,8		*	E03-0108-05	AC OUTLET	E	
⚠ E7 ,8		*	E03-0109-05	AC OUTLET	T	
E11			E11-0162-05	PHONE JACK (3P)		
E12			E20-0823-05	LOCK TERMINAL BOARD(8P)		
E13			E08-0411-05	RECTANGULAR RECEPTACLE		
73	1C,2C		J13-0054-05	FUSE CLIP		
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
⚠ T1			L01-7652-05	POWER TRANSFORMER	E	
⚠ T1			L01-7657-05	POWER TRANSFORMER	T	
D			N89-3008-45	BINDING HEAD TAPTITE SCREW		
G			N30-3008-46	PAN HEAD MACHINE SCREW		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R17 ,18			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R57			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R58			RS14KB3A101J	FL-PROOF RS 100 J 1W		
R115,116			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R117,118			RD14AB2E100J	FL-PROOF RD 10 J 1/4W		
R119,120			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R129			RS14KB3D332J	FL-PROOF RS 3.3K J 2W		
R130			RD14AB2E100J	FL-PROOF RD 10 J 1/4W		
R141,142			RS14KB3D331J	FL-PROOF RS 330 J 2W		
R145			RD14AB2E471J	FL-PROOF RD 470 J 1/4W		
VR1 ,2			R12-1099-05	TRIMMING POT.(1K)		
K1			S51-1052-05	MAGNETIC RELAY		
S1		*	S42-2173-05	MULTIPLE PUSH SWITCH		
S3			S31-2136-05	SLIDE SWITCH (POWER TYPE)		
D1 ,2			HSS104	DIODE		
D1 ,2			1SS133	DIODE		
D3 -7			HSS104A	DIODE		
D3 -7			1SS131	DIODE		
D8			S5566B	DIODE		
D9 ,10			HSS104A	DIODE		
D9 ,10			1SS131	DIODE		
D11			RBV-602LFA	DIODE		
D12 -20			S5566B	DIODE		
D21 ,22			HSS104	DIODE		
D21 ,22			1SS133	DIODE		
IC1 ,2			UPC4570C-A	IC(OP AMP X2)		
IC3 ,4			TC9163N	IC(BILATERAL SWITCH X16)		
IC5			UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)		
IC6			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
IC7			UPC4570C-A	IC(OP AMP X2)		
Q1 -4			2SC2878(B)	TRANSISTOR		
Q5 -8			2SA992(F,E)	TRANSISTOR		
Q9 -12			2SC1845(F,E)	TRANSISTOR		
Q13 ,14			2SA992(F,E)	TRANSISTOR		
Q17 ,18			2SC1845(F,E)	TRANSISTOR		
Q19 ,20			2SC2590	TRANSISTOR		

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Q21 ,22			2SA1110	TRANSISTOR		
Q27 ,28			2SC945(A)(Q,P)	TRANSISTOR		
Q29			2SA733(A)(Q,P)	TRANSISTOR		
Q31			2SA992(F,E)	TRANSISTOR		
Q32			2SB941	TRANSISTOR		
Q33			2SC2003(L,K)	TRANSISTOR		
CONTROL UNIT (X11-2740-20)						
D201-210			B30-1223-05	LED(LN21CPH(V)-C)		
PL1 ,2			B30-1260-05	LAMP		
C201,202			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C203,204			CC45FSL1H221J	CERAMIC 220PF J		
C205,206			CC45FSL1H101J	CERAMIC 100PF J		
C207,208			CK45FB1H222K	CERAMIC 2200PF K		
C209,210			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C211,212			CE04KW1V100M	ELECTRO 10UF 35WV		
C213-216			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C217-220			CF92FV1H473J	MF 0.047UF J		
C221,222			CE04KW1C470M	ELECTRO 47UF 16WV		
C223,224			CK45FF1H103Z	CERAMIC 0.010UF Z		
C225			CE04KW1C470M	ELECTRO 47UF 16WV		
C226			CK45FF1H103Z	CERAMIC 0.010UF Z		
C229			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C230			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C231,232			C90-1351-05	NP-ELEC 3.3UF 50WV		
C233,234			CK45FF1H103Z	CERAMIC 0.010UF Z		
C235			CE04KW1C101M	ELECTRO 100UF 16WV		
C236,237			CC45FSL1H101J	CERAMIC 100PF J		
C238			CK45FF1H223Z	CERAMIC 0.022UF Z		
C239			CE04KW1A101M	ELECTRO 100UF 10WV		
C241,242			CE04KW1C101M	ELECTRO 100UF 16WV		
C243,244			CE04KW1V100M	ELECTRO 10UF 35WV		
C245,246			CC45FSL1H330J	CERAMIC 33PF J		
C247,248			CE04KW1V100M	ELECTRO 10UF 35WV		
X1			L78-0239-05	RESONATOR		
CP201			R90-0202-05	MULTI-COMP 47KX4 J 1/6W		
CP202			R90-0824-05	MULTIPLE RESISTOR		
R221,222			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R225			RS14KB3A100J	FL-PROOF RS 10 J 1W		
R249,250			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
VR201,202			R06-3059-05	POTENTIOMETER		
VR203			R01-5052-05	POTENTIOMETER(200K)		
VR204		*	R29-5035-05	POTENTIOMETER		
S201-213			S40-1064-05	PUSH SWITCH		
D214-224			HSS104	DIODE		
D214-224			1SS133	DIODE		
D225			HZS5.1N(B2)	ZENER DIODE		
D225			RD5.1ES(B2)	ZENER DIODE		
IC201			UPC4570C-A	IC(OP AMP X2)		
IC202		*	UPD7538AC-075	IC(MICROPROCESSOR)		
IC203		*	PST524D	IC		
IC204		*	BA6209N	IC(MOTOR DRIVER)		
IC205			UPC4570C-A	IC(OP AMP X2)		

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Q201,202			2SA733(A)(Q,P)	TRANSISTOR		
Q203,204			2SC2003(L,K)	TRANSISTOR		
A1			W02-0975-05	ELECTRIC CIRCUIT MODULE		

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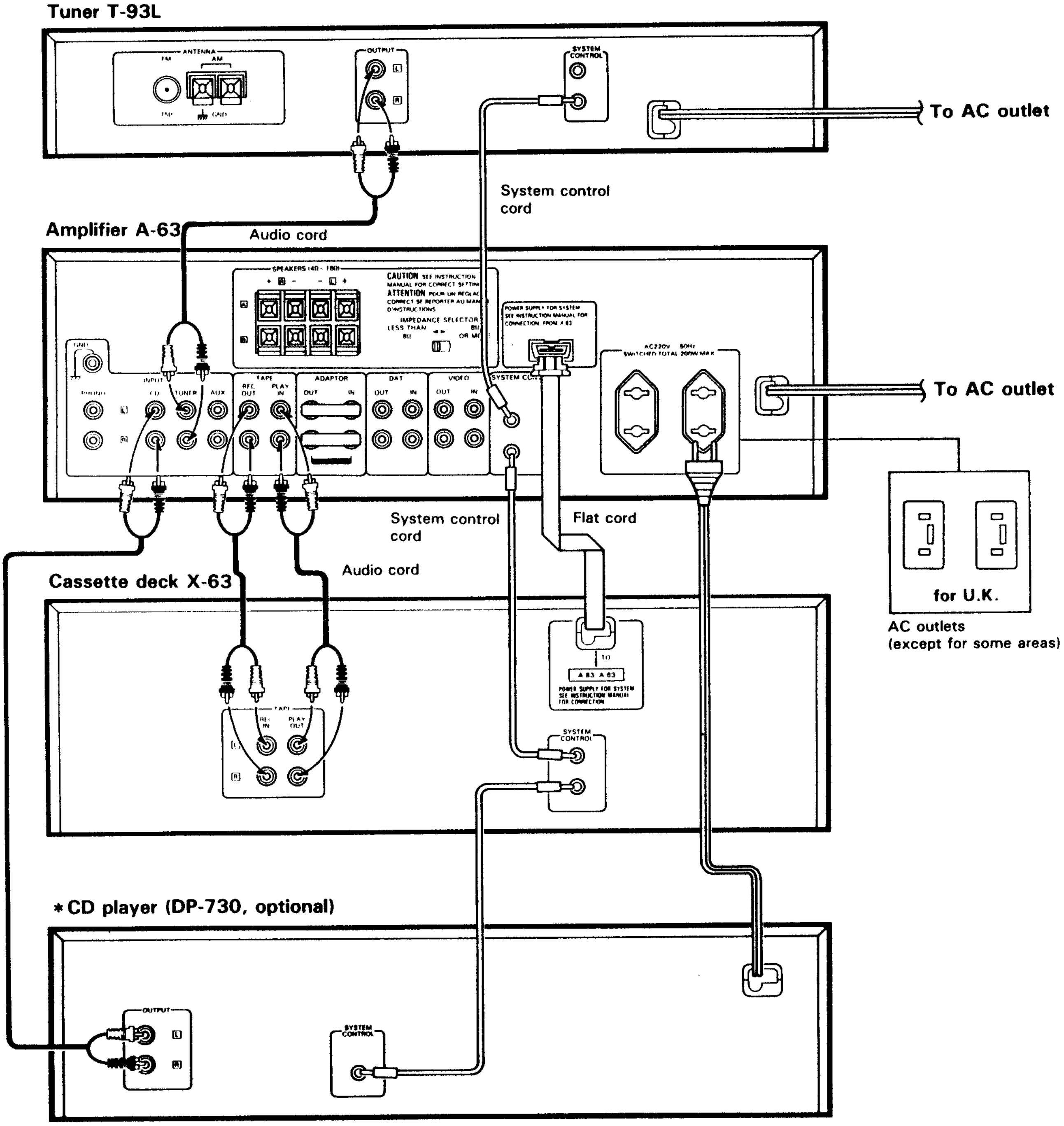
SYSTEM CONNECTIONS

Basic system connections

Make connection as shown below. When connecting the related system components, refer also to the instruction manuals of the related components.

Do not plug in the power lead until all connections are complete.


Tuner T-93L
To AC outlet
System control cord
Amplifier A-63
Audio cord
To AC outlet
System control cord
Flat cord
Audio cord
Cassette deck X-63
for U.K.
AC outlets
(except for some areas)
*CD player (DP-730, optional)

***IMPORTANT:**
This option may not be available in some areas. For details on options, consult your dealer.

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SPECIFICATIONS

Audio section	
Continuous power output	
DIN at 1 kHz 8 Ω	50 W + 50 W
IEC/NF at 8 Ω	45 W + 45 W
Total harmonic distortion	
at 1/2 rated power	0.09%
Signal to noise ratio (IHF '66)	
PHONO (MM)	77 dB
CD, TUNER, AUX, TAPE	100 dB
Signal to noise ratio (DIN at 50 mW output)	
PHONO (MM)	57 dB
CD, TUNER, AUX, TAPE	58 dB
Input sensitivity/Impedance	
PHONO (MM)	2.5 mV/47 kΩ
CD, TUNER, AUX, TAPE	150 mV/47 kΩ
Frequency response	
(10 Hz to 100,000 Hz)	+0 dB, −3 dB
Tone Controls	
BASS	±10 dB (at 100 Hz)
TREBLE	±10 dB (at 10 kHz)
Output level/Impedance	
TAPE REC	150 mV/3.3 kΩ
General	
Power consumption	130 W
Dimension	W: 360 mm H: 129 mm D: 371 mm
Weight (net)	6.8 kg

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